

THAT WHICH IS CLAIMED IS:

1. A composition comprising ZSM-5 having incorporated therein a promoter selected from the group consisting of zinc compounds, boron compounds, and combinations of two or more thereof wherein said composition is a steam-treated composition.

2. A composition according to claim 1 further comprising a binder having the weight ratio of binder to zeolite in the range of from about 1:20 to about 20:1. / /

3. A composition according to claim 3 wherein the weight ratio of binder to zeolite is in the range of from about 1:7 to about 5:1.

4. A composition according to claim 1 wherein the weight ratio of promoter to zeolite is in the range of from about 0.01:1 to about 1:1.

5. A composition according to claim 1 wherein the weight ratio of promoter to zeolite is in the range of from about 0.1:1 to about 0.5:1.

6. A composition according to claim 2 wherein the weight ratio of binder to zeolite is in the range of from about 1:20 to about 20:1 and the weight ratio of promoter to zeolite is in the range of from about 0.01:20 to about 1:1.

7. A composition according to claim 2 wherein the weight ratio of binder to zeolite is in the range of from about 1:7 to about 5:1 and the weight ratio of promoter to zeolite is in the range of from about 0.1:1 to about 0.5:1.

8. A composition according to claim 1 wherein said promoter is selected from the groups consisting of zinc titanate, zinc silicate, zinc borate, zinc fluorosilicate, zinc fluorotitanate, zinc molybdate, zinc chromate, zinc tungstate, zinc zirconate, zinc chromite, zinc aluminate, zinc phosphate, zinc acetate dihydrate, diethylzinc, zinc 2-ethylhexanoate, boron oxide, boric acid, borane-ammonium complex, boron trichloride, boron phosphate, boron nitride, triethyl borane, trimethyl borane, tripropyl borane, trimethyl borate, triethyl borate, tripropyl borate, trimethyl boroxine, triethyl boroxine, tripropyl boroxine, and combinations of two or more thereof.

9. A composition according to claim 1 wherein said promoter is a zinc spinel.

10. A composition according to claim 1 wherein said promoter is selected from the group consisting of zinc titanate, zinc aluminate, zinc silicate (Zn_2SiO_4), and combinations of two or more thereof.

11. A composition according to claim 1 wherein said promoter is zinc titanate.

12. A composition according to claim 1 wherein said promoter is zinc silicate.

13. A composition according to claim 1 wherein said promoter is zinc aluminate.

14. A composition according to claim 1 wherein said promoter is a boron compound.

15. A composition according to claim 1 wherein said promoter is boron oxide.

16. A composition comprising a ZSM-5 zeolite, a binder, and a promoter selected from the group consisting of zinc titanate, zinc silicate, zinc borate, zinc fluorosilicate, zinc fluorotitanate, zinc molybdate, zinc chromate, zinc tungstate, zinc zirconate, zinc chromite, zinc aluminate, zinc phosphate, zinc acetate dihydrate, diethylzinc, zinc 2-ethylhexanoate, boron oxide, boric acid, borane-ammonium complex, boron trichloride, boron phosphate, boron nitride, triethyl borane, trimethyl borane, tripropyl borane, trimethyl borate, triethyl borate, tripropyl borate, trimethyl boroxine, triethyl boroxine, tripropyl boroxine, and combinations of two or more thereof wherein

10 the weight ratio of binder to zeolite is in the range of from about 1:20 to about 20:1;

the weight ratio of promoter to zeolite is in the range of from about 0.01:1 to about 1:1; and said composition is a stream-treated composition.

17. A composition according to claim 16 wherein said promoter is selected from the group consisting of zinc titanate, zinc aluminate, zinc silicate, boron oxide, and combinations of two or more thereof.

18. A composition according to claim 17 wherein the weight ratio of binder to zeolite is in the range of from about 1:5 to about 5:1 and the weight ratio of promoter to zeolite is in the range of from about 0.1:1 to about 0.5:1.

19. A composition according to claim 17 wherein said promoter is a zinc titanate.

20. A composition according to claim 17 wherein said promoter is zinc silicate.

21. A composition according to claim 17 wherein said promoter is zinc aluminate.

22. A composition according to claim 17 wherein said promoter is boron oxide.

23. A composition comprising ZSM-5 zeolite, silica and a promoter selected from the group consisting of zinc titanate, zinc alumina, zinc

silicate, boron oxide, and combinations of two or more thereof wherein the weight ratio of bentonite to zeolite is in the range of from about 1:7 to about 5:1 and the weight ratio of promoter to zeolite is in the range of from about 0.1:1 to about 0.5:1.

24. A process comprising the steps of: (1) combining a ZSM-5 zeolite, a binder, and a promoter selected from the group consisting of zinc, zinc aluminate, zinc titanate, zinc silicate, boron oxide, and combinations of two or more thereof, under a condition sufficient to produce a modified zeolite; and (2) steaming said modified zeolite.

5 25. A process according to claim 24 wherein said promoter is zinc aluminate.

26. A process according to claim 24 wherein said promoter is zinc titanate.

27. A process according to claim 24 wherein said promoter is zinc silicate.

28. A process according to claim 24 wherein said promoter is boron oxide.

29. A process comprising contacting a fluid which comprises a hydrocarbon with a catalyst composition under a condition sufficient to effect the conversion of a hydrocarbon to an olefin and a C₆ to C₈ aromatic

hydrocarbon wherein said catalyst composition comprises a ZSM-5 zeolite and a promoter selected from the groups consisting of zinc titanate, zinc silicate, zinc borate, zinc fluorosilicate, zinc fluorotitanate, zinc molybdate, zinc chromate, zinc tungstate, zinc zirconate, zinc chromite, zinc aluminate, zinc phosphate, zinc acetate dihydrate, diethylzinc, zinc 2-ethylhexanoate, boron oxide, boric acid, borane-ammonium complex, boron trichloride, boron phosphate, boron nitride, triethyl borane, trimethyl borane, tripropyl borane, trimethyl borate, triethyl borate, tripropyl borate, trimethyl boroxine, triethyl boroxine, tripropyl boroxine, and combinations of two or more thereof.

30. A process according to claim 29 wherein said catalyst composition further comprises a binder having a weight ratio of said binder to zeolite in the range of from about 1:20 to about 20:1.

31. A process according to claim 29 wherein the weight ratio of promoter to zeolite is in the range of from about 0.1:1 to about 0.5:1.

32. A process according to claim 30 wherein the weight ratio of binder to zeolite is in the range of from about 1:7 to about 5:1 and the weight ratio of promoter to zeolite is in the range of from about 0.1:1 to about 0.5:1.

33. A process according to claim 29 wherein said promoter is selected from the group consisting of zinc titanate, zinc aluminate, zinc silicate (Zn_2SiO_4), and combinations of two or more thereof.

34. A process according to claim 30 wherein said promoter is zinc titanate.

35. A process according to claim 30 wherein said promoter is zinc silicate.

36. A process according to claim 30 wherein said promoter is zinc aluminate.

37. A process according to claim 30 wherein said promoter is boron oxide.

38. A process comprising contacting a fluid which comprises at least one saturated hydrocarbon with a catalyst composition under a condition sufficient to effect the conversion of a hydrocarbon to an olefin and a C₆ to C₈ aromatic hydrocarbon wherein said catalyst composition comprises a ZSM-5 zeolite, silica, and a promoter selected from the group consisting of zinc aluminate, zinc titanate, zinc silicate, boron oxide, and combinations of two or more thereof wherein the weight ratio of silica to zeolite is in the range of from about 1:7 to about 5:1; and the weight ratio of promoter to zeolite is in the range of from about 0.1:1 to about 0.5:1.

39. A process according to claim 38 wherein said promoter is zinc titanate.

40. A process according to claim 38 wherein said promoter is zinc silicate.

41. A process according to claim 38 wherein said promoter is zinc aluminate.

42. A process according to claim 38 wherein said promoter is boron oxide.

43. A process according to claim 38 wherein said hydrocarbon is a gasoline.

44. A process comprising contacting a fluid which comprises at least one saturated hydrocarbon with a catalyst composition under a condition sufficient to convert a saturated hydrocarbon to an olefin and a C₆-C₈ aromatic hydrocarbon wherein said catalyst is produced by the steps comprising:

5 (1) combining a ZSM-5 zeolite, a binder, and a promoter selected from the group consisting of zinc, zinc aluminate, zinc titanate, zinc silicate, boron oxide, and combinations of two or more thereof, under a condition sufficient to produce a modified zeolite; and (2) steaming said modified zeolite;

45. A process according to claim 44 wherein said promoter is zinc aluminate.

46 A process according to claim 44 wherein said promoter is zinc titanate.

47. A process according to claim 44 wherein said promoter is zinc silicate.

48. A process according to claim 44 wherein said promoter is boron oxide.

49. A process according to claim 44 wherein said hydrocarbon mixture comprises gasolines from catalytic oil cracking processes, pyrolysis gasolines, naphthas, gas oils, reformates, and combinations of any two or more thereof.

50. A process according to claim 49 wherein said hydrocarbon mixture is gasoline.

51. A process according to claim 50 wherein said promoter is zinc titanate.

52. A process according to claim 50 wherein said promoter is zinc silicate.

53. A process according to claim 50 wherein said promoter is zinc aluminate.

54. A process according to claim 50 wherein said promoter is boron oxide.